



Minnesota Municipal Utilities Association

Substation School

April 11-13, 2017

**Location: Ziegler Power Systems
8050 County Road 101 East, Shakopee**



MMUA, along with our partners APPA and MREA, is pleased to offer the 2017 Substation School.

Substation School offers useful instruction by well-qualified presenters. Participants will tour Ziegler's power distribution equipment, as well as the newest Shakopee Public Utilities substation!

Who should attend?

This school can benefit individuals currently working in/on a substation, as well as other personnel who are learning and seek to know more about substations.

April 11, 2017 - Tuesday

Fundamentals of Substation Equipment and Control Systems

Presenters TBD, Power Systems Engineering

Topics to be covered in this presentation include:

- Safety on the Job
- Codes
- Symbols and Designations:
- Drawings
- Major Equipment
- Associated Equipment
- Protective Relaying and Control

Substation Inspections and Maintenance

Jeff Kranz, Rochester Public Utilities

Proper operation and maintenance of your substation is key to sustaining the heartbeat of your power distribution system and ensuring reliability to your customer base. Jeff will cover the industry's best practice on a variety of operational concepts and maintenance issues.

April 12, 2017 - Wednesday

Substation Testing: How, When & Why

Todd Montevideo, Energis Inc.

Topics to be covered include:

- Transformer
- Transformer Insulation
- Transformer Ratio
- Winding Resistance
- Sweep Frequency Response Analysis
- DGA and Oil Quality
- LTCs Transmission & Distribution
- Breaker Testing
- DC Controls
- Ratio Bushing Current Transformer Testing
- SF6 Gas Testing
- Surge Arrestors
- Circuit Testers
- Relays & Regulators
- Commissioning
- Infrared Scanning

Tour - Ziegler's Power Distribution Equipment

Led by Ziegler Staff

Participants will have an opportunity to see a variety of Ziegler's equipment.

Substation Transformer Addition

Joe Adams, Shakopee Public Utilities and Kevin Favero, Leidos Engineering LLC

Hear first-hand what a project of this magnitude entails— 50 MVA addition of a new, state-of-the-art Transformer into an existing substation.

Substation Transformer Addition will cover:

- Substation Planning & Design
- Design Considerations
- Equipment Considerations
- Arc Flash Considerations

Tour - Shakopee Public Utilities' Substation

Led by Shakopee Public Utilities Staff

This is your opportunity to tour Shakopee's new state-of-the-art facility. *Hard hat, safety glasses and safety footwear required!*

April 13, 2017 - Thursday

The 'Ins and Outs' of Substations

Dave Thom, East Central Energy

Presented from a lineman's perspective, participants fully engage during this hands-on demonstration of various tools, hardware and SCADA systems.

What to Bring

Because some of the training will take place outside of the classroom, participants should bring the following items:

- Hard Hat
- Safety Glasses
- Safety Footwear
- Appropriate Work Clothes
- Appropriate Outerwear for the Weather



Workshop Schedule

Tuesday, April 11, 2017

12:00 - 1:00	Registration
1:00-3:00	Fundamentals of Substation Equipment and Control Systems
3:15-4:30	Substation Inspections & Maintenance

Wednesday, April 12

8:30-12:00	Substation Testing: How, When & Why
12:00-1:00	Lunch (provided) / Tour - Ziegler
1:00-2:30	Substation Transformer Addition
2:45-4:30	Tour - Shakopee Public Utilities' Substation

Thursday, April 13

8:30-12:00	The 'Ins and Outs' of Substations
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2017 Substation School

Registration Information

Registration Fees (by March 14, 2017)
Members - \$440 per person
Non-Members - \$690 per person

NOTE: Registration fees increase \$50/person on March 15, 2017.
Deadline to register March 24, 2017.

Registration fee includes: Tuition, materials and supplies, noon lunch on Wednesday, refreshment breaks and certificate of achievement. Participants are responsible for their own transportation and lodging.

Refunds

MMUA will issue a refund (less \$25 per person) for cancellation of an advance registration, provided MMUA is notified by 4:30 pm on March 24. Sorry, no refunds issued for cancellations after March 24, 2017.

See back page for Registration form.

Location:

Ziegler Power Systems
8050 County Road 101 East
Shakopee, MN 55379

For map, [click here](#)



Lodging Information

Attendees are responsible for their own lodging. MMUA has negotiated a reduced rate at Holiday Inn Express for \$99.00/night + tax for standard room. To obtain the reduced rate, call the hotel and ask for MMUA's rate, or use a link below. Availability is limited and reduced rate is not guaranteed. These hotels are all located in Shakopee:

[AmericInn Lodge & Suites](#)

4100 12th Avenue East
952-445-6775

[America's Best Value Inn & Suites](#)

1244 Canterbury Road S.
952-445-3644

[Best Western Plus Shakopee Inn](#)

511 South Marschall Road
952-445-9779

[Country Inn & Suites](#)

1204 Ramsey Street
952-445-0200

[Hampton Inn Minneapolis/Shakopee](#)

4175 Dean Lakes Blvd.
952-641-3600

[Holiday Inn Express Hotel & Suites](#)

4550 12th Avenue East
952-445-2244

[Sandalwood Studios & Suites](#)

3910 12th Avenue East
952-277-0100

[Super 8 of Shakopee](#)

581 South Marschall Road
952-445-4221

[Travelodge Shakopee](#)

1251 1st Avenue East
952-445-5074

[Valley Inn Shakopee](#)

1181 1st Avenue East
952-445-9120

April 11-13

**Location: Ziegler Power Systems
8050 County Road 101 East
Shakopee, MN 55379**

Attendee Information

Name: _____

Email: _____

(2) Name: _____

Email: _____

(3) Name: _____

Email: _____

Note: Our registration system requires that each person has a unique email address. Following the event, a certificate of attendance will automatically be emailed to the address on file.

Utility/Co. _____

Address: _____

Primary Contact: _____

Email: _____

Phone: _____

REFUND: MMUA will issue a refund (less \$25 processing fee per person) provided MMUA is notified of the cancellation by 4:30 p.m. on March 24, 2017. *Sorry, no refunds after March 24.*

PHOTOGRAPHS: By registering for this conference, I, the attendee(s) named above, authorize Minnesota Municipal Utilities Association (MMUA) to photograph me at this event and use such photographs in MMUA marketing materials (both electronic and print). I understand that I will not be paid for giving this consent.

QUESTIONS? Please contact Theresa Neddermeyer by email tneddermeyer@mmua.org or call 763-551-1230.

Registration Fees (by March 14, 2017)

Member Rate - \$440 per person
Non-Member Rate - \$690 per person

Note: Registration fees increase \$50 per person on March 15. Registration deadline March 24.

Total Due \$ _____

Payment Options

- Check Payable to MMUA
- Bill Utility/Company
 - Purchase order _____
- Credit Card
 - Visa MasterCard Discover

Name as it Appears on Card

Cardholder's Signature

Credit Card Number

Expiration Date

Card Code on Back



Minnesota Municipal Utilities Association

**Registering
is Easy!**

Online: www.mmua.org/event/substation-2017
Mail: MMUA
3025 Harbor Lane North, Suite 400
Plymouth, MN 55447-5142
Email: tneddermeyer@mmua.org
Fax: 763-551-0459

**Deadline
to Register
March 24**